CLAIMS

1. A method, comprising steps of:

(a) in response to movement of a user during at least one footstep taken by the user, generating a signal that experiences changes during a time period that the foot is airborne during the at least one footstep; and

(b) identifying at least one change in the signal generated after the foot has become airborne and before the foot contacts a surface that is indicative of the foot being airborne during the at least one footstep.

2. The method of claim 1, further comprising steps of:

(c) identifying one or more characteristics of the signal indicative of the foot leaving the surface to become airborne; and

(d) in response to the at least one change in the signal indicative of the foot being airborne being identified, identifying a moment that one of the one or more characteristics of the signal occurred as an actual moment that the foot left the surface to become airborne.

3. The method of claim 2, wherein the step (d) includes a step of:

(d1) identifying a moment that a most recent one of the one or more characteristics of the signal occurred as the actual moment that the foot left the surface to become airborne.

4. The method of claim 1, wherein the step (b) includes a step of:

(b1) determining when the signal generated after the foot has become airborne and before the foot contacts the surface has changed such that an amplitude of the signal has continuously exceeded a threshold for at least a given period of time.

5. The method of claim 1, wherein the step (a) includes a step of:

(a1) generating the signal with at least one sensor that does not require compression forces thereon to sense movement.

6. The method of 5, wherein the step (a1) includes a step of:

(a2) generating the signal with an accelerometer.

7. A method, comprising steps of:

(a) generating a signal in response to movement of a user during the at least one footstep taken by the user;

(b) monitoring the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time; and

(c) in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identifying that the foot of the user is airborne.

8. The method of claim 7, wherein the step (b) includes a step of:

(b1) determining when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

9. The method of claim 7, wherein the step (b) includes a step of:

(b1) determining when an average difference between a given number of samples of the signal is less than a particular value.

10. A method, comprising steps of:

(a) generating a signal in response to movement of a user during the at least one footstep taken by the user; and

(b) determining whether any characteristics of the signal satisfy any one of a plurality of predetermined criteria consistent with a foot of the user engaging in a particular event during a footstep.

11. The method of claim 10, wherein the step (b) includes a step of:

(b1) determining whether any characteristics of the signal satisfy any one of the plurality of predetermined criteria consistent with the foot coming into contact with a surface during a footstep.

12. The method of claim 11, further comprising a step of:

(c) in response to at least one characteristic of the signal being determined to satisfy one of the plurality of criteria, identifying a moment that the at least one characteristic of the signal began to occur as a moment that the foot came into contact with the surface during the at least one footstep.

13. The method of claim 10, wherein the step (b) includes steps of:

(b1) sampling the signal to obtain a plurality of samples of the signal;

(b2) calculating differences between pairs of the plurality of samples of the signal; and

(b3) determining whether the calculated differences between pairs of the plurality of samples of the signal satisfy any one of the plurality of predetermined criteria consistent with the foot of the user engaging in the particular event during a footstep.

14. A method, comprising steps of:

(a) generating a signal in response to movement of a user during the at least one footstep taken by the user;

(b) sampling the signal to obtain a plurality of samples of the signal;

(c) calculating differences between pairs of the plurality of samples of the signal; and

(d) monitoring the calculated differences between the pairs of the plurality of samples of the signal to identify at least one pair of the plurality of samples of the signal having a difference therebetween that is indicative of a particular event during the at least one footstep.

15. The method of claim 14, wherein:

the method further includes a step of (e) determining that a foot of the user is airborne during the at least one footstep; and

the step (d) includes steps of (d1) after determining that the foot is airborne, monitoring differences between pairs of the plurality of samples of the signal to identify a chronologically first time that a difference between two consecutive samples of the signal exceeds a threshold; and (d2) identifying a moment that one of the two consecutive samples was taken as a moment that the foot came into contact with a surface during the at least one footstep.

16. The method of claim 15, wherein the step (d2) includes a step of:

(d3) identifying a moment that a chronologically first one of the two consecutive samples was taken as the moment that the foot came into contact with the surface during the at least one footstep.

17. The method of claim 15, wherein the step (e) includes steps of:

(e1) monitoring the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time; and

(e2) in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identifying that the foot of the user is airborne.

18. The method of claim 17, wherein the step (e1) includes a step of:

(e3) determining when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

19. The method of claim 17, wherein the step (e1) includes a step of:

(e3) determining when an average difference between a given number of samples of the signal is less than a particular value.

20. The method of claim 14, wherein:

the method further includes a step of (e) determining that a foot of the user is airborne during the at least one footstep; and

the step (d) includes steps of (d1) after determining that the foot is airborne, identifying a chronologically first time that a sum of (1) a difference between a first sample of the signal and a second sample of the signal that immediately follows the first sample, and (2) a difference between the second sample and a third sample of the signal that immediately follows the second sample, exceeds a threshold; and (d2) identifying a moment that one of the first, second, and third consecutive samples was taken as a moment that the foot came into contact with a surface during the at least one footstep.

21. The method of claim 20, wherein the step (d2) includes a step of:

(d3) identifying the moment that the first sample was taken as the moment that the foot came into contact with the surface during the at least one footstep.

22. The method of claim 15, wherein the step (e) includes steps of:

(e1) monitoring the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time; and

(e2) in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identifying that the foot of the user is airborne.

23. The method of claim 22, wherein the step (e1) includes a step of:

(e3) determining when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

24. The method of claim 22, wherein the step (e1) includes a step of:

(e3) determining when an average difference between a given number of samples of the signal is less than a particular value.

25. The method of claim 24, wherein:

the method further includes a step of (e) determining that a foot of the user is airborne during the at least one footstep; and

the step (d) includes steps of (d1) after determining that the foot is airborne, identifying a chronologically first time that differences between pairs of consecutive samples of the signal exceed a threshold for at least three out of four consecutive pairs of samples; and

(d2) identifying a moment that one of the samples included in the four consecutive pairs of samples was taken as a moment that the foot came into contact with the surface during the at least one footstep.

26. The method of claim 25, wherein the step (d2) includes a step of:

(d3) identifying a moment that a chronologically first sample of the four consecutive pairs of samples was taken as the moment that the foot came into contact with the surface during the at least one footstep.

27. The method of claim 25, wherein the step (e) includes steps of:

(e1) monitoring the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time; and

(e2) in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identifying that the foot of the user is airborne.

28. The method of claim 27, wherein the step (e1) includes a step of:

(e3) determining when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

29. The method of claim 27, wherein the step (e1) includes a step of:

(e3) determining when an average difference between a given number of samples of the signal is less than a particular value.

30. The method of claim 14, wherein:

the method further includes steps of (e) determining that a foot of the user is in contact with a surface during the at least one footstep, and (f) determining that the foot of the user is airborne during the at least one footstep; and

the step (d) includes steps of (d1) after determining that the foot is in contact with the surface, monitoring differences between pairs of the plurality of samples of the signal to identify a chronologically last time before the foot is determined to be airborne during the at least one footstep that a difference between two of the monitored samples of the signal exceeds a threshold; and (d2) identifying a moment that one of the two signals was taken as a moment that the foot left the surface to become airborne during the at least one footstep.

31. The method of claim 30, wherein the step (d2) includes a step of:

(d3) identifying the moment that a chronologically last sample of the two samples was taken as the moment that the foot left the surface during the at least one footstep to become airborne.

32. The method of claim 30, wherein the step (e) includes steps of:

(e1) monitoring the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time; and

(e2) in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identifying that the foot of the user is airborne.

33. The method of claim 32, wherein the step (e1) includes a step of:

(e3) determining when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

34. The method of claim 32, wherein the step (e1) includes a step of:

(e3) determining when an average difference between a given number of samples of the signal is less than a particular value.

35. The method of claim 14, wherein:

the step (d) includes a step of (d1) monitoring the calculated differences between the pairs of the plurality of samples of the signal to identify when the signal has experienced a minimum degree of smoothness for at least a given period of time; and

the method further includes a step of (e) in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identifying that the foot of the user is airborne.

36. The method of claim 32, wherein the step (d1) includes a step of:

(d2) determining when an average difference between a given number of samples of the signal is less than a particular value.

37. The method of claim 14, wherein the step (a) includes a step of:

(a1) generating the signal with at least one sensor that does not require compression forces thereon to sense movement.

38. The method of claim 37, wherein the step (a1) includes a step of:

(a2) generating the signal with an accelerometer.

39. A method, comprising steps of:

(a) generating a signal in response to movement of a user during a plurality of footsteps taken by the user;

(b) setting a threshold based upon at least one first characteristic of the signal generated during at least a first one of the plurality of footsteps preceding a second one of the plurality of footsteps; and

(c) analyzing the signal generated during the second one of the plurality of footsteps to determine whether at least one second characteristic of the signal generated during the second one of the plurality of footsteps has exceeded the threshold.

40. A method, comprising steps of:

(a) generating a signal in response to movement of a user during a plurality of footsteps taken by the user;

(b) with at least one processor, analyzing the signal to determine a moment that a foot of the user makes contact with a surface during one of the plurality of footsteps taken by the user;

(c) after performing the step (b), with the at least one processor, analyzing the signal to determine a moment that the foot leaves the surface during the one of the plurality of footsteps;

(d) waiting a given period of time after performing the step (b) to perform the step (c);

(e) with the at least one processor, during the given period of time, performing calculations involving at least one of at least one determined foot contact time and a determined foot loft time; and

(f) repeating the steps (b), (c), (d), and (e) for each of the plurality of footsteps.

41. A system to be used in conjunction with at least one sensor that, in response to movement of a user during at least one footstep taken by the user on a surface, generates a signal that experiences changes during a time period that a foot of the user is airborne during the at least one footstep, the system comprising:

at least one processor configured to identify at least one change in the signal generated after the foot has become airborne and before the foot contacts the surface that is indicative of the foot being airborne during the at least one footstep.

42. The system of claim 41, wherein the at least one processor is further configured to identify one or more characteristics of the signal indicative of the foot leaving the surface to become airborne, and to, in response to the at least one change in the signal indicative of the foot being airborne being identified, identify a moment that one of the one or more characteristics of the signal occurred as an actual moment that the foot left the surface to become airborne.

43. The system of claim 42, wherein the at least one processor is further configured to identify a moment that a most recent one of the one or more characteristics of the signal occurred as the actual moment that the foot left the surface to become airborne.

44. The system of claim 41, wherein the at least one processor is further configured to determine when the signal generated after the foot has become airborne and before the foot contacts the surface has changed such that an amplitude of the signal has continuously exceeded a threshold for at least a given period of time.

45. A system to be used in conjunction with at least one sensor that generates a signal in response to movement of a user during at least one footstep taken by the user, the system comprising:

at least one processor configured to monitor the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time, and to, in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identify that the foot of the user is airborne.

46. The system of claim 45, wherein the at least one processor is further configured to determine when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

47. The system of claim 45, wherein the at least one processor is further configured to determine when an average difference between a given number of samples of the signal is less than a particular value.

48. The system of claim 45, in combination with the at least one sensor.

49. The system of claim 48, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

50. A system to be used in conjunction with at least one sensor that generates a signal in response to movement of a user during at least one footstep taken by the user on a surface, the system comprising:

at least one processor configured to determine whether any characteristics of the signal satisfy any one of a plurality of predetermined criteria consistent with a foot of the user engaging in a particular event during a footstep.

51. The system of claim 50, wherein the at least one processor is further configured to determine whether any characteristics of the signal satisfy any one of the plurality of predetermined criteria consistent with the foot coming into contact with the surface during a footstep.

52. The system of claim 51, wherein the at least one processor is further configured to, in response to at least one characteristic of the signal being determined to satisfy one of the plurality of criteria, identify a moment that the at least one characteristic of the signal began to occur as a moment that the foot came into contact with the surface during the at least one footstep.

53. The system of claim 50, wherein the at least one processor is further configured to sample the signal to obtain a plurality of samples of the signal, to calculate differences between pairs of the plurality of samples of the signal, and to determine whether the calculated differences between pairs of the plurality of samples of the signal satisfy any one of the plurality of predetermined criteria consistent with the foot of the user engaging in the particular event during a footstep.

54. The system of claim 50, in combination with the at least one sensor.

55. The system of claim 54, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

56. A system to be used in conjunction with at least one sensor that generates a signal in response to movement of a user during at least one footstep taken by the user on a surface, the system comprising:

at least one processor configured to sample the signal to obtain a plurality of samples of the signal, to calculate differences between pairs of the plurality of samples of the signal, and to monitor the calculated differences between the pairs of the plurality of samples of the signal to identify at least one pair of the plurality of samples of the signal having a difference therebetween that is indicative of a particular event during the at least one footstep.

57. The system of claim 56, wherein the at least one processor is further configured to determine that a foot of the user is airborne during the at least one footstep, to, after determining that the foot is airborne, monitor differences between pairs of the plurality of samples of the signal to identify a chronologically first time that a difference between two consecutive samples of the signal exceeds a threshold, and to identify a moment that one of the two consecutive samples was taken as a moment that the foot came into contact with the surface during the at least one footstep.

58. The system of claim 57, wherein the at least one processor is further configured to identify a moment that a chronologically first one of the two consecutive

samples was taken as the moment that the foot came into contact with the surface during the at least one footstep.

59. The system of claim 57, wherein the at least one processor is further configured to monitor the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time, and to, in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identify that the foot of the user is airborne.

60. The system of claim 59, wherein the at least one processor is further configured to determine when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

61. The system of claim 59, wherein the at least one processor is further configured to determine when an average difference between a given number of samples of the signal is less than a particular value.

62. The system of claim 56, wherein the at least one processor is further configured to determine that a foot of the user is airborne during the at least one footstep, to, after determining that the foot is airborne, identify a chronologically first time that a sum of (1) a difference between a first sample of the signal and a second sample of the signal that immediately follows the first sample, and (2) a difference between the second sample and a third sample of the signal that immediately follows the second sample, exceeds a threshold, and to identify a moment that one of the first, second, and third consecutive samples was taken as a moment that the foot came into contact with the surface during the at least one footstep.

63. The system of claim 62, wherein the at least one processor is further configured to identify the moment that the first sample was taken as the moment that the foot came into contact with the surface during the at least one footstep.

64. The system of claim 57, wherein the at least one processor is further configured to monitor the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time, and to, in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identify that the foot of the user is airborne.

65. The system of claim 64, wherein the at least one processor is further configured to determine when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

66. The system of claim 64, wherein the at least one processor is further configured to determine when an average difference between a given number of samples of the signal is less than a particular value.

67. The system of claim 66, wherein the at least one processor is further configured to determine that a foot of the user is airborne during the at least one footstep, to, after determining that the foot is airborne, identify a chronologically first time that differences between pairs of consecutive samples of the signal exceed a threshold for at least three out of four consecutive pairs of samples, and to identify a moment that one of the samples included in the four consecutive pairs of samples was taken as a moment that the foot came into contact with the surface during the at least one footstep.

68. The system of claim 67, wherein the at least one processor is further configured to identify a moment that a chronologically first sample of the four consecutive pairs of samples was taken as the moment that the foot came into contact with the surface during the at least one footstep.

69. The system of claim 67, wherein the at least one processor is further configured to monitor the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time, and to, in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identify that the foot of the user is airborne.

70. The system of claim 69, wherein the at least one processor is further configured to determine when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

71. The system of claim 69, wherein the at least one processor is further configured to determine when an average difference between a given number of samples of the signal is less than a particular value.

72. The system of claim 56, wherein the at least one processor is further configured to determine that a foot of the user is in contact with the surface during the at least one footstep, to determine that the foot of the user is airborne during the at least one footstep, to, after determining that the foot is in contact with the surface, monitor differences between pairs of the plurality of samples of the signal to identify a chronologically last time before the foot is determined to be airborne during the at least one footstep that a difference between two of the monitored samples of the signal exceeds a threshold, and to identify a moment that one of the two signals was taken as a moment that the foot left the surface to become airborne during the at least one footstep.

73. The system of claim 72, wherein the at least one processor is further configured to identify the moment that a chronologically last sample of the two samples was taken as the moment that the foot left the surface during the at least one footstep to become airborne.

74. The system of claim 72, wherein the at least one processor is further configured to monitor the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time, and to, in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identify that the foot of the user is airborne.

75. The system of claim 74, wherein the at least one processor is further configured to identify when an amplitude of the signal has continuously exceeded a threshold for at least the given period of time.

76. The system of claim 74, wherein the at least one processor is further configured to determine when an average difference between a given number of samples of the signal is less than a particular value.

77. The system of claim 56, wherein the at least one processor is further configured to monitor the calculated differences between the pairs of the plurality of samples of the signal to identify when the signal has experienced a minimum degree of smoothness for at least a given period of time, and to, in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identify that the foot of the user is airborne.

78. The system of claim 74, wherein the at least one processor is further configured to determine when an average difference between a given number of samples of the signal is less than a particular value.

79. The system of claim 56, in combination with the at least one sensor.

80. The system of claim 79, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

81. A system to be used in conjunction with at least one sensor that generates a signal in response to movement of a user during a plurality of footsteps taken by the user, the system comprising:

at least one processor configured to set a threshold based upon at least one first characteristic of the signal generated during at least a first one of the plurality of footsteps preceding a second one of the plurality of footsteps, and to analyze the signal generated during the second one of the plurality of footsteps to determine whether at least one second

characteristic of the signal generated during the second one of the plurality of footsteps has exceeded the threshold.

82. The system of claim 81, in combination with the at least one sensor.

83. The system of claim 82, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

84. A system, comprising:

at least one processor configured to compare a foot contact time of a user with a threshold value, to determine that the user is running if the foot contact time is less than the threshold value, and to determine that the user is walking if the foot contact time is greater than the threshold value.

85. The system of claim 84, wherein the at least one processor is further configured to, if the user is walking, calculate at least one of a speed and a pace of the user using a first equation in which the foot contact time is a factor, and to, if the user is running, calculate the at least one of the speed and pace of the user using a second equation which is different than the first equation and in which the foot contact time is a factor.

86. A system, comprising:

at least one sensor that, in response to movement of a user during at least one footstep taken by the user, generates a signal that experiences changes during a time period that the foot is airborne during the at least one footstep; and

means for identifying at least one change in the signal generated after the foot has become airborne and before the foot contacts a surface that is indicative of the foot being airborne during the at least one footstep.

87. The system of claim 86, wherein the at least one sensor does not require compression forces thereon to generate the signal.

88. A system, comprising:

at least one sensor that generates a signal in response to movement of a user during at least one footstep taken by the user; and

means for monitoring the signal to determine when the signal has experienced a minimum degree of smoothness for at least a given period of time, and for, in response to determining that the signal has experienced the minimum degree of smoothness for at least the given period of time, identifying that the foot of the user is airborne.

89. The system of claim 88, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

90. A system, comprising:

at least one sensor that generates a signal in response to movement of a user during at least one footstep taken by the user; and

means for determining whether any characteristics of the signal satisfy any one of a plurality of predetermined criteria consistent with a foot of the user engaging in a particular event during a footstep.

91. The system of claim 90, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

92. A system, comprising:

at least one sensor that generates a signal in response to movement of a user during at least one footstep taken by the user; and

means for sampling the signal to obtain a plurality of samples of the signal, for calculating differences between pairs of the plurality of samples of the signal, and for monitoring the calculated differences between the pairs of the plurality of samples of the signal to identify at least one pair of the plurality of samples of the signal having a difference therebetween that is indicative of a particular event during the at least one footstep.

93. The system of claim 92, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

94. A system, comprising:

at least one sensor that generates a signal in response to movement of a user during a plurality of footsteps taken by the user; and

means for setting a threshold based upon at least one first characteristic of the signal generated during at least a first one of the plurality of footsteps preceding a second one of the plurality of footsteps, and for analyzing the signal generated during the second one of the plurality of footsteps to determine whether at least one second characteristic of the signal generated during the second one of the plurality of footsteps has exceeded the threshold.

95. The system of claim 94, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

96. A method, comprising steps of:

(a) generating a signal in response to movement of a user during a footstep taken by the user;

(b) identifying a first characteristic in the signal consistent with the occurrence of a toe-off event;

(c) identifying a first moment that the first characteristic occurred as a potential occurrence of a toe-off event during the footstep;

(d) identifying a second characteristic in the signal, occurring after the first characteristic in the signal, consistent with the occurrence of a toe-off event; and

(e) identifying a second moment that the second characteristic occurred as the potential occurrence of the toe-off event during the footstep.

97. The method of claim 96, further comprising a step of:

(f) when it is determined that a foot of the user is airborne, identifying the most recently-identified potential occurrence of the toe-off event as the actual occurrence of the toe-off event during the footstep.

98. A system, comprising:

at least one sensor that generates a signal in response to movement of a user during a footstep taken by the user; and

at least one processor that identifies a first characteristic in the signal consistent with the occurrence of a toe-off event, that identifies a first moment that the first characteristic occurred as a potential occurrence of a toe-off event during the footstep, that identifies a second characteristic in the signal, occurring after the first characteristic in the signal, consistent with the occurrence of a toe-off event, and that identifies a second moment that the second characteristic occurred as the potential occurrence of the toe-off event during the footstep.

99. The system of claim 98, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

100. The system of claim 98, wherein the processor is configured such that, when it is determined that a foot of the user is airborne, the most recently-identified potential occurrence of the toe-off event is identified as the actual occurrence of the toe-off event during the footstep.

101. A system, comprising:

at least one sensor that generates a signal in response to movement of a user during a footstep taken by the user;

means for identifying a first characteristic in the signal consistent with the occurrence of a toe-off event;

means for identifying a first moment that the first characteristic occurred as a potential occurrence of a toe-off event during the footstep;

means for identifying a second characteristic in the signal, occurring after the first characteristic in the signal, consistent with the occurrence of a toe-off event; and

means for identifying a second moment that the second characteristic occurred as the potential occurrence of the toe-off event during the footstep.

102. The system of claim 101, wherein the at least one sensor does not require compression forces thereon to generate the signal in response to movement of the user.

103. The system of claim 101, further comprising means for identifying a most recently-identified potential occurrence of the toe-off event as the actual occurrence of the toe-off event during the footstep when it is determined that a foot of the user is airborne.